

**WATER RESOURCES DEVELOPMENT PROJECT**

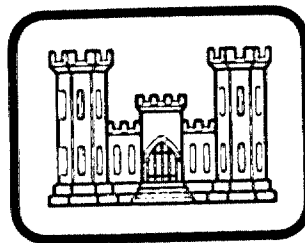
**OPERATION AND MAINTENANCE  
MANUAL**

**FOR**

**RIVERBANK PROTECTION**

**PRESTILE STREAM**

**BLAINE, MAINE**



**DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS.**

**JANUARY 1980**



RIVERBANK PROTECTION  
BEFORE  
COMPLETION OF PROJECT

OPERATION AND MAINTENANCE MANUAL  
RIVERBANK PROTECTION PROJECT  
PRESTILE STREAM  
BLAINE, MAINE

FOREWARD

The successful functioning of bank stabilization works is not assured solely by the construction of stone protection along the riverbank. If the system is to perform the functions for which it was designed, it must be carefully maintained not only during periods of normal flow stages, but also during subsequent flood periods.

The need for proper maintenance cannot be too highly stressed in view of the fact that large damages may be incurred through operating failure caused by deterioration or damage that would have been eliminated by proper maintenance.

Necessary maintenance and proper operation require that responsible local persons have a thorough understanding the recommended methods of maintaining the system and operating it during storm periods. It is the purpose of this manual to provide complete information so that all parties may fully understand their responsibilities in maintaining and operating riverbank protection system in accordance with the regulations prescribed by the Secretary of the Army as amplified by this manual.

The general flood control Regulations for Maintenance and Operation of Flood Control Works quoted herein were approved by the acting Secretary of War on 9 August 1944. Upon establishment of the Department of Defense the improvement of rivers and harbors and other waterways for flood control and other purposes, formerly under the jurisdiction of the Secretary of War, became the responsibility of the Secretary of the Army. Reference therein to the Secretary of War and War Department shall be construed to mean, respectively, the Secretary of the Army and the Department of the Army. Where reference is made to the District Engineer in the Regulations included in this manual, it shall be construed to mean the Division Engineer, New England Division, Corps of Engineers.

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## SECTION I

### INTRODUCTION

#### 1. AUTHORIZATION

The construction of the riverbank protection project at Blaine, Maine, was authorized by the Chief of Engineers on 18 August 1977 pursuant to the authority contained in Section 14 of the 1946 Flood Control Act as amended.

#### 2. LOCATION

The town of Blaine is located in Aroostook County, Maine, approximately 15 miles south of Presque Isle and about 25 miles north of Houlton, Maine. The village of Robinson, a section of the town of Blaine, is located on the east bank of Prestile Stream. The project area includes the left and right banks of Prestile Stream from the wood planked dam downstream to Robinson Road bridge.

#### 3. DESCRIPTION OF DAMAGE

The problem area is located in the village of Robinson and involves erosion of a town roadway embankment and bridge abutment. During April 1976, high flows on the Prestile Stream washed out a 25-foot wide section of a 6-foot high timber crib dam located about 100 feet upstream of the problem area. The resulting flood flow surge caused erosion of a 40-foot long section of Robinson Road adjacent to the left bridge abutment and to the right abutment.

#### 4. DESCRIPTION OF PROJECT

The work for riverbank repairs included repair of the heavy stone apron and stone slope protection on both banks from the dam downstream to the highway bridge.

#### 5. PROTECTION PROVIDED

The stone protection will prevent further erosion of the riverbanks.

#### 6. CONSTRUCTION HISTORY

Construction of this riverbank stabilization project was initiated in August 1979 and was completed in December 1979. The project was constructed by Bridge Construction Corp., of Augusta, Maine. The Federal cost of the project was approximately \$38,450.

7. ASSURANCES OF LOCAL COOPERATION

On 6 July 1979, the Town of Blaine signed the Local Assurances. A copy of the formal assurances is included as Appendix B.

8. PLANS

A reduced size set of drawings showing the project as actually constructed is included as Appendix D.

## SECTION II

### GENERAL REGULATIONS

#### 9. PURPOSE OF THIS MANUAL

The purpose of this manual is to present detailed information to be used as a guide in complying with "Flood Control Regulations - Maintenance and Operation of Flood Control Works" as approved by the Acting Secretary of War on 9 August 1944, and published in this volume as Appendix A. In executing assurances of local cooperation, the town of Blaine has agreed to maintain and operate the completed works in accordance with these regulations. The regulations which are intended to cover all local protection projects constructed by the Department throughout the United States are general in nature, and obviously cannot give detailed instructions for the maintenance and operation of a specific project. The details set forth in this manual for maintenance and operation for the town of Blaine project are intended to supplement the regulations to permit obtaining all the benefits and protection against erosion for which the project was designed. Failure to maintain and operate the project as required by the regulations and as detailed herein could cause property losses and could result in an irreparable loss of confidence in the bank protection system.

#### 2. GENERAL RULES AND REGULATIONS

Paragraph 208.10 (a) of the regulations prescribed by the Secretary of War gives general rules for the maintenance and operation of structures and facilities constructed by the United States for local protection. Applicable portions are quoted below to avoid the necessity for cross reference and are further defined by remarks under each quotation.

"(1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits."

These requirements cannot be overstressed, and the town authorities must take adequate provisions for funds, personnel, equipment and materials to allow for the proper maintenance and operation of the river-bank protective works.

"(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of War, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the 'Superintendent,' who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during the periods of low water, all without cost to the United States."

The committee should be composed of competent members, preferably men experienced in engineering or construction work. The committee must be given broad authority to carry out its responsibilities. The name, address and office and home telephone numbers of the Superintendent, and any changes thereof, shall be promptly furnished the Division Engineer.

"(3) N/A

"(4) N/A

"(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the War Department or his authorized representatives that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with the standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work."

Any contemplated improvements or alterations as outlined above must be submitted to the U.S. Army Engineer Division, Waltham, Massachusetts, and the approval of the Division Engineer obtained prior to the town authorizing the work. All requests for approval shall be in writing and complete drawings in duplicate, one set of which shall be in

reproducible form, must be submitted along with a full description of the work intended. The town will be held responsible for obtaining prior approval from the Corps of Engineers for any improvements or alterations proposed by itself, private parties or any public parties. The town shall furnish the Division Engineer as-built drawings, in duplicate, of the completed work.

"(6) It shall be the duty of the Superintendent to submit a semi-annual report to the District Engineer covering inspection, maintenance, and operation of the protective works."

See paragraph 13 of this SECTION for instructions on submitting reports.

"(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works."

The Division Engineer or his representatives will make periodic inspections of the protective works to determine if the project is being properly maintained and operated by the town.

"(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made."

The town should maintain the facilities and keep them in good repair and not wait for the Division Engineer to call such matters to its attention. Upon request, the Division office will advise the town how to make any major repairs to the facilities.

"(9) OMITTED

"(10) The War Department will furnish local interests with an Operation and Maintenance Manual for each completed project, to assist them in carrying out their obligations under these regulations."

The flood control committee should familiarize itself with the contents of this manual. The town authorities are encouraged to call on the Division Office of the Corps of Engineers for any additional advice or instructions required by them in carrying out the town's obligations for maintaining and operating the protection facilities.

## 11. MAINTENANCE.

a. The word "maintenance" as used in this manual applies to the upkeep, repair and care of the work constructed by the United States and turned over to the town of Blaine, Maine. If the work is neglected there will be deterioration and possible failure in flood time when there is dire need of dependable protection.

b. Maintenance includes a regular walking inspection over the entire system... The purpose of an inspection is to detect any deterioration that indicates a need for repair or replacement.

## 12. OPERATION.

a. Operation in this manual refers to the actual use of the various features of the protection works during abnormal river stages.

b. When abnormal river stages are expected it is important that the Superintendent make immediate decisions and take prompt action and that he have the authority to carry out his decisions.

c. To insure correct operation it is essential that at least one person (preferably 2 or 3) be familiar with the protection works, know just what supplies and transport are on hand, and know what men and tools can be mobilized for the patrolling and repair work.

## 13. REPORTS

a. The regulations prescribed by the Secretary of the Army call for semi-annual reports to be submitted by the Superintendent to the Division Engineer, covering inspection, maintenance and operation. Inspection of the protective facilities shall be made immediately prior to flood seasons, immediately following floods, and otherwise at intervals not exceeding 90 days as required by the regulations.

b. To assist the Superintendent in making his inspection and reports, sample forms are included in Appendix C. The Superintendent shall have additional copies printed for use in submitting his reports.

c. The semi-annual reports shall be submitted in triplicate to the Division Engineer each February and August. The reports will be submitted in letter form with copies of the inspection forms covering the inspections made during the period of the reports. The reports shall cover the following points:

(1) A description of the maintenance work performed in the preceding six months.

(2) The number and classification of men working on maintenance, regularly and intermittently.

(3) Description of any work performed by contract on the repair or improvements of the project.

### SECTION III

#### RIVERBANK PROTECTION WORK

##### 14. DESCRIPTION

The riverbank stabilization work accomplished by the Corps of Engineers consists of placement of random and gravel fills and stone protection, on both sides of the stream.

##### 15. MAINTENANCE

Paragraph 208.10(g)(1) of the prescribed regulations sets forth rules for the maintenance of channels and floodways. These rules are quoted below, followed by brief comments where applicable to clarify these rules as they apply to the town of Blaine project.

"Channels and Floodways.- (1) Maintenance. - Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that;

"(i) The channel or floodway is clear of debris, weeds and wild growth."

All debris and growth which tend to restrict the channel shall be removed promptly.

"(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;"

Dumping of waste materials or any types of encroachment on the channel shall be prohibited and prompt steps shall be taken to remove or have removed any such encroachments.

"(iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;"

Shoal areas should be removed, but care should be exercised that slopes of the channel and existing banks are not undercut or damaged. Existence of shoal areas will be apparent from inspections during time of low flow.

"(iv) Banks are not being damaged by rain or wave wash and that no sloughing of bank has occurred;"

Banks damaged by rain or wave wash or sloughing shall be repaired promptly, using gravel and stone similar to that used in their original construction.

"(v) Riprap sections are in good condition."

Stone slope protection must be maintained in good condition to resist erosion. Any loss of stone due to slides or vandalism must be promptly replaced. Periodic checks should be made of the stone slope protection, to detect movement or loss of stone and prompt corrective action should be taken.

Such inspection shall be made at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections.

#### 16. OPERATION

Paragraph 208.10(g)(2) of the prescribed regulations gives rules for operation of channels and floodways. These rules are paraphrased below with regard to the project.

(2) Operation. Both banks of the river shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current. Appropriate measures shall be taken to prevent the formation of jams of ice or debris. Large objects which become lodged against the banks shall be removed. The project shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, stone protection, etc. shall be repaired.

APPENDIX A

REGULATIONS PRESCRIBED BY THE  
SECRETARY OF THE ARMY

## TITLE 35—NAVIGATION AND NAVIGABLE WATERS

### Chapter II—Corps of Engineers, War Department

#### PART 208—FLOOD CONTROL REGULATIONS MAINTENANCE AND OPERATION OF FLOOD CONTROL WORKS

Pursuant to the provisions of section 3 of the Act of Congress approved June 22, 1936, as amended and supplemented (49 Stat. 1871; 50 Stat. 877; and 55 Stat. 634; 33 U. S. C. 701c; 701c-1), the following regulations are hereby prescribed to govern the maintenance and operation of flood control works:

**§ 208.10 Local flood protection works; maintenance and operation of structures and facilities.—(a) General.** (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of War, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the right-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the War Department or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the Superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representative shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The War Department will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under these regulations.

(b) **Levees.—(1) Maintenance.** The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces. Where practicable, measures shall be taken to retard bank erosion by planting of willows or other suitable growth on areas riverward of the levees. Periodic inspections shall be made by the Superintendent to insure that the above maintenance measures are being effectively carried out and, further, to be certain that:

(i) No unusual settlement, sloughing, or material loss of grade or levee cross section has taken place;

(ii) No caving has occurred on either the land side or the river side of the levee which might affect the stability of the levee section;

(iii) No seepage, saturated areas, or sand boils are occurring;

(iv) Too drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged;

(v) Drains through the levees and gates on solid drains are in good working condition;

(vi) No revetment work or riprap has been displaced, washed out, or removed;

(vii) No action is being taken, such as burning grass and weeds during inappropriate seasons, which will retard or destroy the growth of sod;

(viii) Access roads to and on the levee are being properly maintained;

(ix) Cattle guards and gates are in good condition;

(x) Crown of levee is shaped so as to drain readily, and roadway thereon, if any, is well shaped and maintained;

(xi) There is no unauthorized grazing or vehicular traffic on the levees;

(xii) Encroachments are not being made on the levee right-of-way which might endanger the structure or hinder its proper and efficient functioning during times of emergency.

Such inspections shall be made immediately prior to the beginning of the flood season; immediately following each major high water period, and otherwise at intervals not exceeding 90 days; and such intermediate times as may be necessary to insure the best possible care of

the levee. Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accomplished during the appropriate season as scheduled by the Superintendent.

(2) **Operation.** During flood periods the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope and to be certain that:

(i) There are no indications of slides or sloughs developing;

(ii) Wave wash or scouring action is not occurring;

(iii) No low reaches of levee exist which may be overtopped;

(iv) No other conditions exist which might endanger the structure.

Appropriate advance measures will be taken to insure the availability of adequate labor and materials to meet all contingencies. Immediate steps will be taken to control any condition which endangers the levee and to repair the damaged section.

(c) **Flood walls.—(1) Maintenance.** Periodic inspections shall be made by the Superintendent to be certain that:

(i) No seepage, saturated areas, or sand boils are occurring;

(ii) No undue settlement has occurred which affects the stability of the wall or its water tightness;

(iii) No trees exist, the roots of which might extend under the wall and offer accelerated seepage paths;

(iv) The concrete has not undergone cracking, chipping, or breaking to an extent which might affect the stability of the wall or its water tightness;

(v) There are no encroachments upon the right-of-way which might endanger the structure or hinder its functioning in time of flood;

(vi) Care is being exercised to prevent accumulation of trash and debris adjacent to walls, and to insure that no fires are being built near them;

(vii) No bank caving conditions exist riverward of the wall which might endanger its stability;

(viii) Too drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged.

Such inspections shall be made immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 90 days. Measures to eliminate encroachments and effect repairs found necessary by such inspections shall be undertaken immediately. All repairs shall be accomplished by methods acceptable in standard engineering practice.

(2) **Operation.** Continuous patrol of the wall shall be maintained during flood periods to locate possible leakage at monolith joints or seepage underneath the wall. Floating plant or boats will not be allowed to lie against or tie up to the wall. Should it become necessary during a flood emergency to pass anchor cables over the wall, adequate measures shall be taken to protect the concrete and construction joints. Immediate steps shall be taken to correct any condition which endangers the stability of the wall.

(d) **Drainage structures.—(1) Maintenance.** Adequate measures shall be taken to insure that inlet and outlet channels are kept open and that trash, drift, or debris is not allowed to accumulate near drainage structures. Flap gates and manually operated gates and valves on

drainage structures shall be examined, oiled, and trial operated at least once every 90 days. Where drainage structures are provided with stop log or other emergency closures, the condition of the equipment and its housing shall be inspected regularly and a trial installation of the emergency closure shall be made at least once each year. Periodic inspections shall be made by the Superintendent to be certain that:

(i) Pipes, gates, operating mechanism, riprap, and headwalls are in good condition;

(ii) Inlet and outlet channels are open;

(iii) Care is being exercised to prevent the accumulation of trash and debris near the structures and that no fires are being built near bituminous coated pipes;

(iv) Erosion is not occurring adjacent to the structure which might endanger its water tightness or stability.

Immediate steps will be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

(2) *Operation.* Whenever high water conditions impend, all gates will be inspected a short time before water reaches the invert of the pipe and any object which might prevent closure of the gate shall be removed. Automatic gates shall be closely observed until it has been ascertained that they are securely closed. Manually operated gates and valves shall be closed as necessary to prevent inflow of flood water. All drainage structures in loaves shall be inspected frequently during floods to ascertain whether seepage is taking place along the lines of their contact with the embankment. Immediate steps shall be taken to correct any adverse condition.

(c) *Closure structures—(1) Maintenance.* Closure structures for traffic openings shall be inspected by the superintendent every 90 days to be certain that:

(i) No parts are missing;

(ii) Metal parts are adequately covered with paint;

(iii) All movable parts are in satisfactory working order;

(iv) Proper closure can be made promptly when necessary;

(v) Sufficient materials are on hand for the erection of sand bag closures and that the location of such materials will be readily accessible in times of emergency.

Tools and parts shall not be removed for other use. Trial erections of one or more closure structures shall be made once each year, alternating the structures chosen so that each gate will be erected at least once in each 3-year period. Trial erection of all closure structures shall be made whenever a change is made in key operating personnel. Where railroad operation makes trial erection of a closure structure infeasible, rigorous inspection and drill of operating personnel may be substituted therefor. Trial erection of sand bag closures is not required. Closure materials will be carefully checked prior to and following flood periods, and damaged or missing parts shall be repaired or replaced immediately.

(2) *Operation.* Erection of each movable closure shall be started in sufficient time to permit completion before flood waters reach the top of the structure sill. Information regarding the proper method of erecting each individual closure structure, together with an estimate of the time required by an experienced crew to complete its erection will be given

in the Operation and Maintenance Manual which will be furnished local interests upon completion of the project. Closure structures will be inspected frequently during flood periods to ascertain that no undue leakage is occurring and that drains provided to care for ordinary leakage are functioning properly. Seats or floating plant shall not be allowed to tie up to closure structures or to discharge passengers or cargo over them.

(1) *Pumping plants—(1) Maintenance.* Pumping plants shall be inspected by the Superintendent at intervals not to exceed 30 days during flood seasons and 90 days during off-flood seasons to insure that all equipment is in order for instant use. At regular intervals, proper measures shall be taken to provide for cleaning plant, buildings, and equipment, repainting as necessary, and lubricating all machinery. Adequate supplies of lubricants for all types of machines, fuel for gasoline or diesel powered equipment, and flash lights or lanterns for emergency lighting shall be kept on hand at all times. Telephone service shall be maintained at pumping plants. All equipment, including switch gear, transformers, motors, pumps, valves, and gates shall be trial operated and checked at least once every 90 days. Megger tests of all insulation shall be made whenever wiring has been subjected to undue dampness and otherwise at intervals not to exceed one year. A record shall be kept showing the results of such tests. Wiring disclosed to be in an unsatisfactory condition by such tests shall be brought to a satisfactory condition or shall be promptly replaced. Diesel and gasoline engines shall be started at such intervals and allowed to run for such length of time as may be necessary to insure their serviceability in times of emergency. Only skilled electricians and mechanics shall be employed on tests and repairs. Operating personnel for the plant shall be present during tests. Any equipment removed from the station for repair or replacement shall be returned or replaced as soon as practicable and shall be trial operated after reinstallation. Repairs requiring removal of equipment from the plant shall be made during off-flood seasons insofar as practicable.

(2) *Operation.* Competent operators shall be on duty at pumping plants whenever it appears that necessity for pump operation is imminent. The operator shall thoroughly inspect, trial operate, and place in readiness all plant equipment. The operator shall be familiar with the equipment manufacturers' instructions and drawings and with the "Operating Instructions" for each station. The equipment shall be operated in accordance with the above-mentioned "Operating Instructions" and care shall be exercised that proper lubrication is being supplied all equipment, and that no overheating, undue vibration or noise is occurring. Immediately upon final receding of flood waters, the pumping station shall be thoroughly cleaned, pump house sumps flushed, and equipment thoroughly inspected, oiled and greased. A record or log of pumping plant operation shall be kept for each station, a copy of which shall be furnished the District Engineer following each flood.

(3) *Channels and floodways—(1) Maintenance.* Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:

(i) The channel or floodway is clear of debris, weeds, and wild growth;

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;

(iii) The capacity of the channel floodway is not being reduced by the formation of shoals;

(iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;

(v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works.

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank slopes and earth deflection dikes. The Superintendent shall provide for periodic repair and cleaning of debris basins, check dams, and related structures as may be necessary.

(2) *Operation.* Both banks of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. Appropriate measures shall be taken to prevent the formation of jams of ice or debris. Large objects which become lodged against the bank shall be removed. The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, riprap, deflection dikes and walls, drainage outlets, or other flood control structures repaired.

(h) *Miscellaneous facilities—(1) Maintenance.* Miscellaneous structures and facilities constructed as a part of the protective works and other structures and facilities which function as a part of, or affect the efficient functioning of the protective works, shall be periodically inspected by the Superintendent and appropriate maintenance measures taken. Damaged or unserviceable parts shall be repaired or replaced without delay. Areas used for ponding in connection with pumping plants or for temporary storage of interior run-off during flood periods shall not be allowed to become filled with silt, debris, or dumped material. The Superintendent shall take proper steps to prevent restriction of bridge openings and, where practicable, shall provide for temporary raising during floods of bridges which restrict channel capacities during high flows.

(2) *Operation.* Miscellaneous facilities shall be operated to prevent or reduce flooding during periods of high water. Those facilities constructed as a part of the protective works shall not be used for purposes other than flood protection without approval of the District Engineer unless designed therefor. (49 Stat. 1571, 59 Stat. 577; and 55 Stat. 638; 33 U.S.C. 701c; 701c-1) (Regs. 9 August 1944, CE AFWEF)

[TOTAL]

J. A. ULIO.

Major General.

The Adjutant General.

[P. R. Doc. 60-12285; Filed, August 16, 1944; 9:45 a.m.]

APPENDIX B

ASSURANCES OF LOCAL COOPERATION

THE UNITED STATES OF AMERICA  
AND  
THE TOWN OF BLAINE  
FOR LOCAL COOPERATION AT  
THE EMERGENCY BANK PROTECTION PROJECT  
PRESTILE STREAM, BLAINE, MAINE

THIS AGREEMENT entered into this 6th day of July, 1979 by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the Contracting Officer executing this agreement, and the TOWN OF BLAINE (hereinafter called the "Town"), acting by and through its Board of Selectmen, WITNESSETH THAT:

WHEREAS, construction of emergency bank protection works at Prestile Stream, Blaine, Maine, comprising placement of stone protection on both sides of the riverbank for a distance of approximately 100 feet to the Robinson Road Bridge, Prestile Stream, Blaine, Maine, was approved by the Chief of Engineers on 29 June 1979, under authority of Section 14 of the Flood Control Act of 1946, Public Law 79-256, approved 24 July 1946, as amended by Section 27 of the Water Resources Development Act of 1974, Public Law 93-251, approved 7 March 1974; and

WHEREAS, the Town hereby represents that it has the authority and capability to furnish the non-Federal cooperation required by the Federal legislation authorizing the Project and by other applicable law.

NOW, THEREFORE, the parties agree as follows:

1. The Town agrees that if the Government shall commence construction of the Emergency Bank Protection Project, Prestile Stream, Blaine, Maine (hereinafter called the "Project"), substantially in accordance with the approval of the Chief of Engineers dated 29 June 1979, under authority of Section 14 of the Flood Control Act of 1946, as amended, the Town shall, in consideration of the Government commencing construction of such Project,

fulfill the requirements of non-Federal cooperation, to wit:

a. Provide, without cost to the United States, all lands, easements, rights-of-way and utility relocations necessary for project construction.

b. Hold and save the United States free from damages due to the construction, operation and maintenance of the project, except where such damages are due to the fault or negligence of the United States or its contractors.

c. Maintain and operate the project after completion without cost to the United States in accordance with regulations prescribed by the Secretary of the Army.

d. Assume the responsibility for all costs in excess of the Federal cost limitation of \$250,000.

e. Prevent future encroachment which might interfere with proper functioning of the project.

f. Comply with the requirements of non-Federal cooperation specified in Sections 210 and 305 of Public Law 91-646 approved 2 January 1971 entitled the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970".

g. Comply with Title VI of the Civil Rights Act of 1964 (78th Stat. 241) and Department of Defense Directive 5500, 11 issued pursuant and published in Part 300 of Title 32, Code of Federal Regulations.

2. The Town hereby gives the Government a right to enter upon, at reasonable times and in a reasonable manner, lands which the Town owns or controls, for access to the Project for the purpose of inspection, and for the purpose of operating, repairing and maintaining the Project, if such inspection shows that the Town for any reason is failing to repair and maintain the Project in accordance with the assurances hereunder and has persisted in such failure after a reasonable notice in writing by the Government delivered to Town Officials. No operation, repair and maintenance by the Government in such event shall operate to relieve the Town of responsibility to meet its obligations as set forth in paragraph 1 of this Agreement, or to preclude the Government from pursuing any other remedy at law or equity.

IN WITNESS WHEREOF, the Parties hereto have executed this contract as of the day first above written.

THE UNITED STATES OF AMERICA

TOWN OF BLAINE, MAINE

By Max B. Scheider  
MAX B. SCHEIDER  
Colonel, Corps of Engineers  
Division Engineer  
Contracting Officer

FOR THE SECRETARY OF THE ARMY

DATE: 6 July 1979

By Eldon Correll  
Ray E. Gannon  
Robert T. Hume  
Board of Selectmen  
For Signing  
Julius J. Ruben

KNOW ALL MEN BY THESE PRESENTS:

That the TOWN OF BLAINE, acting by and through its BOARD OF SELECTMEN, hereby grants to the UNITED STATES OF AMERICA, its agents, employees and contractors permission to enter all lands needed for construction and maintenance of the emergency bank protection project, Prestile Stream, Blaine, Maine, which was approved by the Chief of Engineers on \_\_\_\_\_ 1979, under authority of Section 14 of the Flood Control Act of 1946, as amended.

The purpose of the right-of-entry is to allow construction of the emergency bank protection works at Prestile Stream, Blaine, Maine, comprising placement of stone protection on both sides of the riverbank for a distance of approximately 100 feet to the Robinson Road Bridge, Prestile Stream, Blaine, Maine.

IN WITNESS WHEREOF, on this 4th day of June, 1979, the said Town of Blaine has caused this instrument to be executed and delivered and its seal to be hereunto affixed by its Board of Selectmen hereunto duly authorized and empowered.

TOWN OF BLAINE

By

Eldon Terrell

Wayne Garrison

Bryant A. Griffin

Board of Selectmen

Leo Griffin

Arthur J. Bubar

State of Maine )

) ss. Blaine

County of Aroostook )

In Blaine on the 4th day of June, 1979, before me personally appeared Eldon Terrell, Wayne Garrison, Bryant and Grass, Leo Griffin, Arthur Bubar members of the Board of Selectmen, Town of Blaine, to me known as the parties executing the foregoing instrument, and they acknowledged said instrument by them executed to be their free act and deed as Selectmen, and the free act and deed of the Town of Blaine.

[Signature]  
Town Clerk

(Town Seal)

I have reviewed the foregoing Agreement and have considered the effect of Section 221 of the Flood Control Act of 1970, Public Law 91-611, and I am satisfied that the Town can fully comply with the provisions of said Agreement. Accordingly, I approve the foregoing Agreement.

  
Town Counsel

CERTIFICATION

I, R. F. M. [Signature], do hereby certify that I am Town Clerk of the Town of Blaine, Maine, named herein, that E. H. [Signature] and [Signature] who signed this Agreement on behalf of the Town of Blaine, were then and there duly elected and qualified Selectmen of the Town of Blaine; that said Agreement was duly signed for and on behalf of the Town of Blaine, by virtue of their authority as Selectmen and is within the scope of their statutory powers. I further certify that [Signature] was the Town Counsel on the date of his approval of the Agreement.

IN WITNESS WHEREOF, I have hereunto affixed my hand and seal of the Town of Blaine, this 5<sup>th</sup> day of June, 1979.

  
Town Clerk

(Seal)

ATTORNEY'S CERTIFICATE

I hereby certify that the Town of Blaine has valid and assignable real estate rights or title in and to all premises needed for construction and maintenance of the Emergency Bank Protection Project, Prestile Stream, Blaine, Maine, as approved by the Chief of Engineers on 1979, under authority of Section 14 of the Flood Control Act of 1946, as amended.

June 18, 1979  
Date

[Signature]  
Town Counsel

APPENDIX C

INSPECTION REPORT FORMS

# LOCAL PROTECTION PROJECT INSPECTION REPORT

Project:

Maintaining Agency:

Type Inspection: \_\_\_\_\_ Semi-Annual Staff \_\_\_\_\_ 90 Day Interim

River Basin:

Date of Inspection

Feature	Sat	Unsat	Deficiencies
<b>PUMPING STATIONS - STRUCTURES</b>			<b>N/A</b>
INTERIOR			N/A
EXTERIOR			N/A
<b>PUMPS - MOTORS - ENGINES</b>			<b>N/A</b>
TRIAL OPERATED			N/A
GENERAL CONDITION			N/A
POWER SOURCE			N/A
INSULATION TESTS			N/A
METAL INTAKES/OUTLETS			N/A
GATE VALVES			N/A
<b>GATES - DRAINAGE STRUCTURES</b>			<b>N/A</b>
TRIAL OPERATED			N/A
GENERAL CONDITION			N/A
LUBRICATION			N/A
<b>RIVER BANKS</b>			
GENERAL CONDITION			
SLOPES/EROSION			
CAVING			
TRESPASSING			
SLOPE PROTECTION			
<b>STOP-LOGS - LOG BOOM</b>			<b>N/A</b>
CONDITION OF LOGS			N/A
AVAILABILITY OF LOGS			N/A
HIGHWAY SLOTS			N/A
STORAGE FACILITIES			N/A
<b>CHANNELS -</b>			
BANKS			
CONSTRUCTION CONTROL			



DESIGNATION OF SUPERINTENDENT

Name Of Project: \_\_\_\_\_

Location: \_\_\_\_\_

MAINTAINING MUNICIPAL AGENCY:

Agency: \_\_\_\_\_

Address: \_\_\_\_\_ Tel. No. \_\_\_\_\_

"SUPERINTENDENT" - as required by Section 208.10 (a) (2), Chap II,  
Title 33 USC

Name & Title: \_\_\_\_\_

Employed by: \_\_\_\_\_

Business Address: \_\_\_\_\_

Business Tel. No: \_\_\_\_\_

Nights, Sundays, Address: \_\_\_\_\_

Nights, Sundays, Tel. No: \_\_\_\_\_

Remarks:

Signed \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

NOTE: To be submitted and updated as necessary by the responsible agency which will maintain and operate the works in accordance with regulations prescribed by the Secretary of the Army as required by law (Title 33, Chap. 208, Sec II, USC).

APPENDIX D

AS-BUILT DRAWINGS

Limit of contractor's work area

To Pond St

Conc. headwall

80' To limit of contractor's work area

Sand bags

Wood plank trestle

58'±

0+00

0+13L

El. 101.0

100.5

100.3

Class III Stone Protection

10'±

0+15L

Rip Rap Stone Apron (Existing)

0+35L

El. 101.0

El. 100.0

El. 98.0

El. 95.0

El. 94.0

El. 93.0

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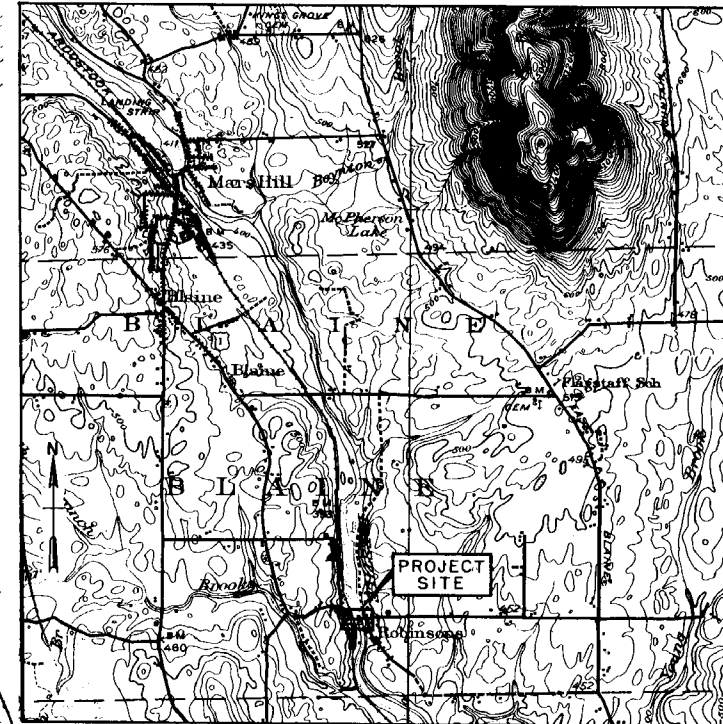
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El. -181.0

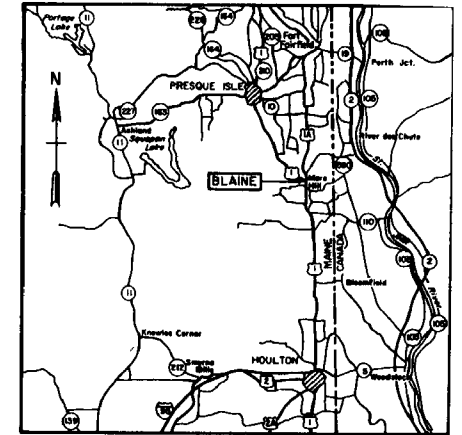
El. -182.0

El. -183.0

El




### VICINITY MAP



LOCATION MAP

SCALE IN MILES

- NOTES:
1. Place fillet of class III stone protection as required to protect end protection for class II stone protection revetment;
  2. Place individual blocks of class III stone protection as required to retain earth.




VALUE  
ENGINEERING  
PAYS  
DIVIDENDS



**GRAPHIC SCALES**

1" = 10'    10'    0    10'    20'

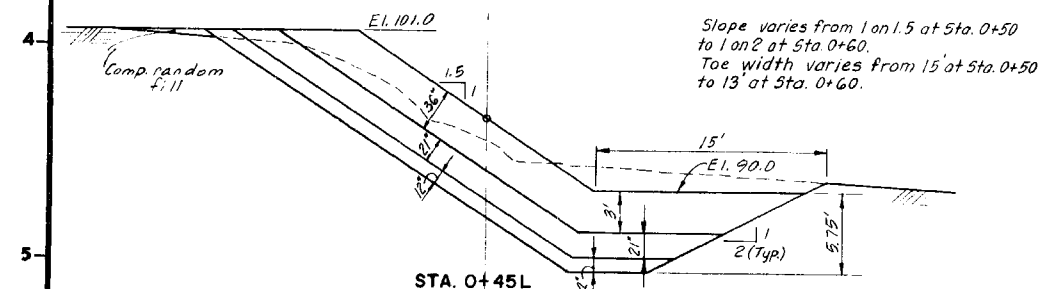
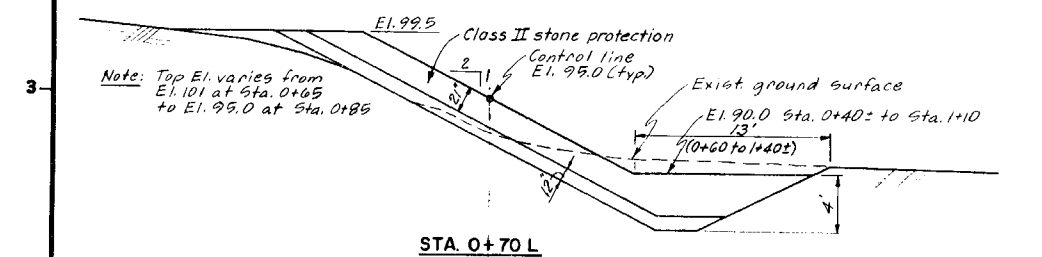
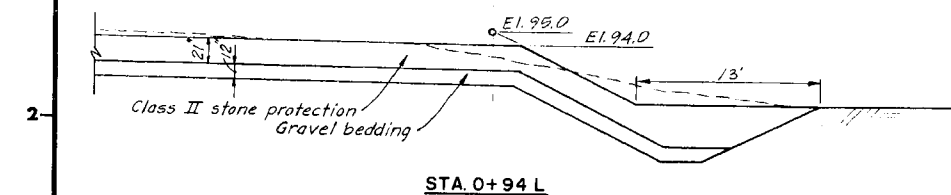
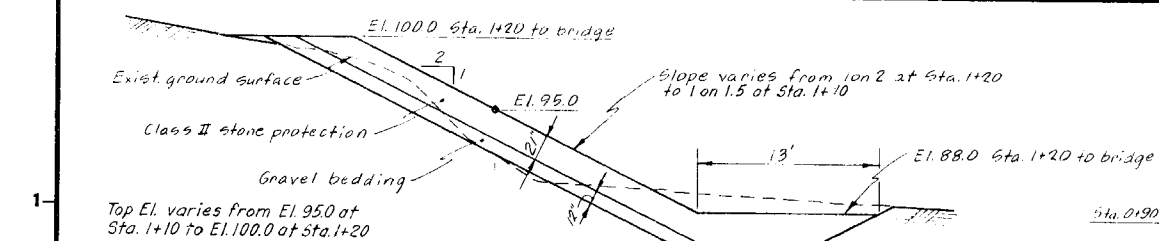


As For: Moving

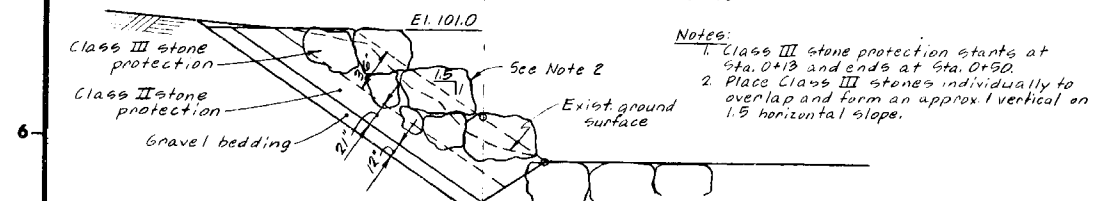
Contract No. W-33-79-C-0106

**GENERAL PLAN**  
SCALE 1" = 10'

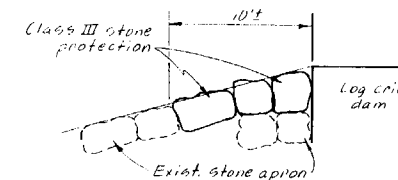
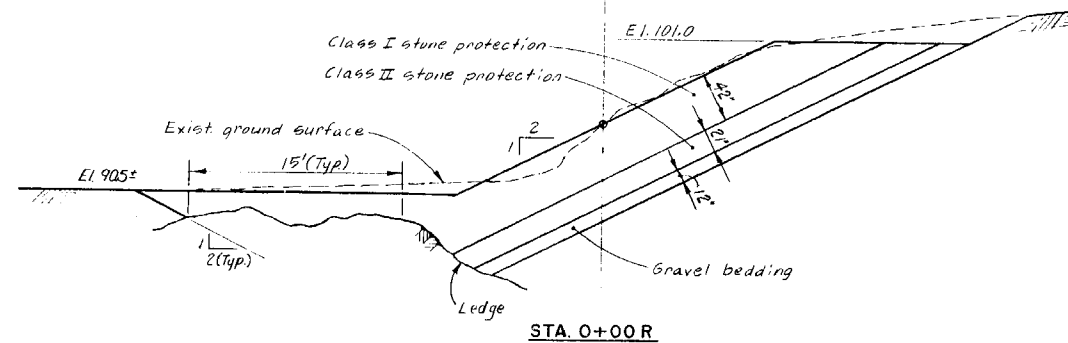
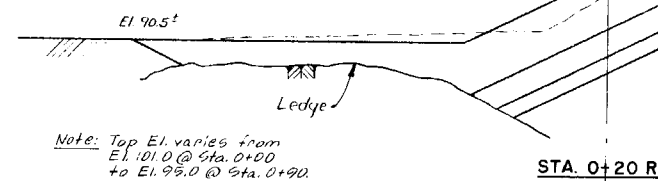
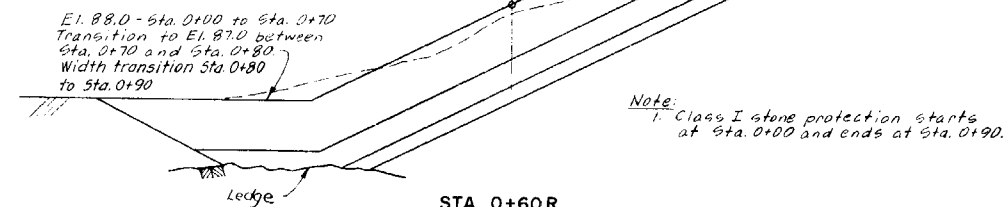
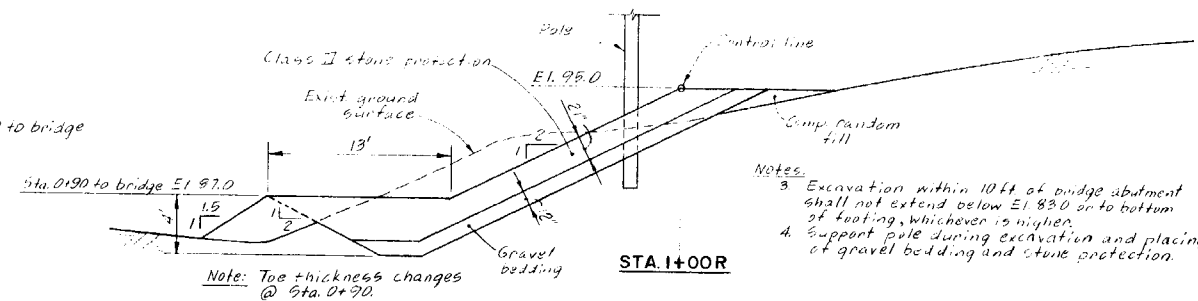
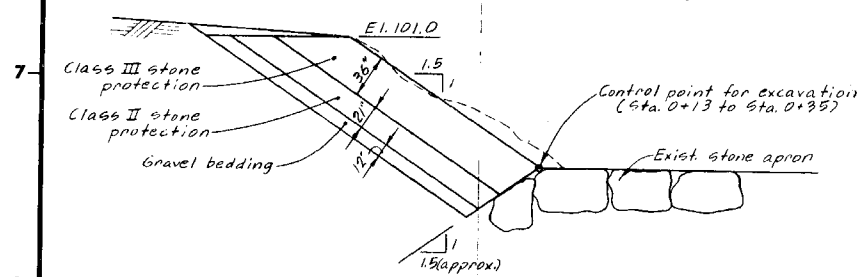
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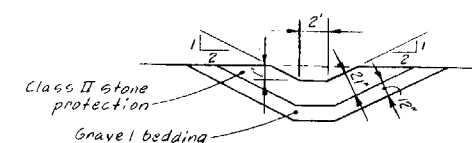
(TYPICAL FROM STA. 0+35± to STA. 0+50)  
TOE TRANSITION BETWEEN STA. 0+35± AND STA. 0+40±



(TYPICAL FROM STA. 0+13 to STA. 0+35±)

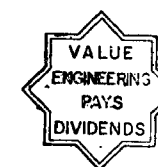


SECTION B  
SCALE: 1"=5'



SECTION A  
SCALE: 1"=5'

TYPICAL SECTIONS  
LOOKING DOWNSTREAM  
SCALE: 1"=5'



GRAPHIC SCALES  
1"=5' 0' 5' 10'

As Built Drawing

Contract No. DACW 33-79 C 0106

REVISION		DATE	DESCRIPTION	BY
Final Field Corrections				

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM, MASS.			
WATER RESOURCES DEVELOPMENT PROJECT SAINT JOHN RIVER BASIN BLAINE, MAINE STREAM BANK PROTECTION TYPICAL SECTIONS			
DES. BY R.T.C. L.R.L. R.T.C.		SUBMITTED 10/1/79	
APPROVAL RECOMMENDED 10/1/79		PROJECT ENGINEER 10/1/79	
APPROVED 10/1/79		DATE JUNE 1979	
SPEC. NO. DACW 33-79-B-0032		DRAWING NUMBER BLA-1	
SCALE: 1"=5'		SHEET 2	